UNIVERSITY OF GONDAR
COLLEGE OF MEDICINE AND HEALTH SCIENCES
DEPARETMET OF MIDWIFERY

KNOWLEDGE, PRACTICE AND ASSOCIATED FACTORS OF CERVICAL CANCER SCREENING AMONG WOMEN HEALTH WORKERS IN GONDAR UNIVERSITY TEACHING AND REFERRAL HOSPITAL,GONDAR, ETHIOPIA , 2016.

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GONDAR, ETHIOPIA

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Acronyms and abbreviations

AIDS……..Acquired immune dification syndrome

CCS.....Cervical Cancer Screening

CCSS…… cervical cancer screening service

FMOH..... Federal Ministry of Health

GUTRH…… Gondar University Teaching and Referral Hospital

HPV……. Human papiloma virus

ICO ……. Institute catala`d'Oncologia

KAP.....Knowledge Attitude Practice

LBC.....Liquid-Based Cytology

PMTCT…….preventing Mather to child transmition

REC…….. Review and Ethical Clearance committee

ROC……. Reproductive Organ Cancer

STI……..sexual transmuted infection

VIA.....Visual Inspection with Acetic acid

VILI.....Visual Inspection with Lugol’s iodine

ABSTRACT

Introduction: Cervical cancer is both preventable and curable, yet morbidity and mortality from the disease remain high especially in developing countries. Request for cervical cancer screening by Pap smear and cytology or any other screening methods have been found to be exceedingly low even among health workers.

Objective: This study was conducted to examine the knowledge, practice and associated factors of cervical screening among female health care providers in University of Gondar Teaching Hospital.

Methodology: Intuitional based cross-sectional study was employed. Data was collected from 322 female health workers through a self-administered questionnaire. The data was entered and cleaned using Epi Info version 7 and analyzed using SPSS version 20.

Result: More than half the respondents know cervical cancer is high in Ethiopia and is a public problem. Regarding knowledge about cervical cancer screening two third mentioned cervical cancer screening will detect earlier than symptom, but less half know types of screening. The practice screening was low with 0nly 18% screening themselves. None of the variables have association with knowledge of cervical cancer screening on multivariate analysis. Midwifes are 9 times more likely to practice than other and those who take training on cervical cancer screening are 4 times more likely to practice as compared to those not having. There appears to be no association between level of knowledge and practice.

Discussion and Conclusion: None of the variables have association with knowledge of cervical cancer screening on multivariate analysis. Profession and in-service training were positively associated with practice towards cervical cancer screening. There appears to be no association between level of knowledge and practice. The literatures in sub-Saharan Africa have mixed finding regarding KAP towards cervical cancer screening among health care providers. More has to be done regarding health education and awareness creation among health workers to increase cervical cancer screening practice. Further study evaluating factors affecting cervical screening practice among female health care providers is needed to increase cervical cancer screening.

INTRODUCTION

1.1 Background

Cancer is one of the most preventable non-communicable chronic diseases. Nevertheless, the number of cancer patients is expected to reach 9 million by 2015 and increase to 14.1 million in 2032 (1). Furthermore, cancer killed about 7.6 million people in 2005, and three quarters of them were in low- and middle-income countries (2). Indeed, in developed countries, 50 % of cancer patients die of the disease, while in developing countries, 80%of cancer patients already had late stage incurable tumors when they were diagnosed (2).

Cervical cancer is caused mainly by infection with certain strains of human papillomavirus (HPV), a predominantly sexually transmitted virus that infects the epithelial cells of the cervix uteri and can result in precancerous lesions and invasive cancer.(3) Most cervical lesions do not progress to cancer, and those which do, progress slowly, making cervical cancer largely preventable through effective screening.(3, 4) Marked decreases in cervical cancer incidence and mortality have been achieved by systematic population-based cytology screening programs in developed nations from as early as the 1960s.(5-8)

According to the WHO report; globally in 2012, cervical cancer incidence was 7.9%, mortality 7.5% and five year prevalence was 9%(9-11). In sub-Saharan Africa the incidence was 25.2%, mortality 23.2% and five year prevalence was 27.6% (12, 13). In Ethiopia the incidence, mortality and five year prevalence were 17.3%, 16.5% and 18.2% respectively (14).

However, healthcare providers do not have the opportunities for continuous clinical education and refresher training which may influence the type and quality of services offered to the population.(15) The key problems of the health care system stem from a lack of resources and outdated principles and techniques and these are exemplified in current practices in cervical cancer screening.(16) According to the Ethiopian policy on cervical cancer prevention and control, “regular preventive screening” should take place

“once a year for women aged 30 to 60 years”. Doctors, midwives and nurses have the responsibility to carry out these services, but there is no published information on how this responsibility is implemented.

Recently FMOH launches guide line for cervical cancer prevention which aims to provide healthcare providers, implementing partners and other stake holders involved in the prevention and control of cervical cancer in Ethiopia with standardized cervical cancer prevention and control health service delivery directive and from the pilot project with PATH finder and FMOH planned to scale up screening service in to public health care facilities.

1.2 Statement of the problem

The true incidence of cervical cancer in many African countries is unknown as there is gross under-reporting. Only very few countries have functional cancer registries and recordkeeping is minimal or non-existent in many countries. Some of the figures quoted in the literature are hospital-based, which represents a small fraction of women dying from cervical cancer, as most women cannot access hospital care and die at home. A mortality rate of 35 per 100,000 is reported in Eastern Africa. The reported mortality rates in developed countries with successful screening programs seldom exceed 5 per 100,000 women.(2, 17) Records show that of the nearly 22 million Ethiopian women over the age of 15, approximately 7,600 are diagnosed with cervical cancer and roughly 6,000 women die of the disease each year.(18)

Factors attributed to high prevalence in Sub-Saharan Africa include high rate of human papilloma virus, high parity, poverty, malnutrition, HIV/AIDS, poor education and lack of access to health care facility. Male circumcision is said to be protective.(19)

Cervical cancer is potentially preventable, unlike other reproductive organ cancers. Effective screening method and HPV vaccination can lead to reduction in morbidity and mortality from cervical cancer. Well-organized programs to detect and treat precancerous abnormalities at the early stages of cancer prevent up to 80% of cervical cancers deaths in developed countries. However, effective screening programs have

been difficult to implement in low resource settings. This is one reason why cervical cancer mortality rates are much higher in the developing world. So reduction of the cervical cancer mortality in the developing world is only one of the many priorities competing for scarce resources. Based on this finding FMOH reacted by establishing cervical screening programs with NGO's.(20-22)

FMOH developed ten year strategic plan will help to understand the magnitude of the problem and identify cost-effective interventions for reproductive organ cancer (ROC) screening, diagnosis and treatment. According to this strategy there will be involvement of community, NGO's and government bodies. Actions at community level include creating awareness of ROC's, health system actions include increasing human resource capacity through appropriate training and developing norms and standards for service provision, policy actions involve undertaking new policy initiatives and expanding multi-sartorial coordination.

1.3 Rational of study

Cervical cancer occurs worldwide but the highest incidence and mortality rates of cervical cancer are in Eastern, Western, and Southern Africa, as well as South-Central Asia and South America. Rates are lowest in Western Asia, Australia/New Zealand.(23)

In sub-Saharan Africa cervical cancer accounts for 22.2% of all cancers in women and it is also the most common cause of cancer death among women. Cervical cancer is however the second common cancer among women after cancer of the breast in some areas. About 60–75% of women in sub- Saharan Africa who develop cervical cancer live in rural areas. Many of these women go untreated, mostly due to lack of access (financial and geographical) to health care. Women in sub-Saharan Africa lose more years to cervical cancer than to any other type of cancer.(11, 23)

Cervical Cancer screening could reduce at least 50% of Cervical Cancer deaths. For early screening and early detection, having knowledge is important. Women with a better knowledge of cervical cancer were more likely to attend cervical cancer screenings. Lack of knowledge about cervical cancer remains an important factor that

affects the participation of women in these screening practices. Level of knowledge about cervical cancer and screening, perceived health behavior is higher in urban settings than in rural settings.(24)

According to Institute catala`d'Oncologia Human papiloma virus (ICO HPV) Information Centre, Ethiopia has Total fertility rate of 4.8, median age at first intercourse in females was 16 years, among women age 15-24 who had sex before age 15 was 16%, and high HIV prevalence and the low socioeconomic status that makes a population of 27.19 million women ages 15 years and older at risk of developing cervical cancer (12). However community-based study done in northwest Ethiopia shows, Knowledge of risk factor, symptoms and preventive option regarding cervical cancer were very low (13). Even the knowledge and screening practice was very low in educated women and study done in Addis Ababa show that knowledge and practice of cervical cancer screening was very low among nurse population.(14)

In most developed countries studies shows on average, practice of cervical cancer screening was 82% which was low and in Ethiopia it is 0.6%.(25) Most study findings show practice of screening is followed by knowledge of cervical cancer and screening. And study in north Ethiopia shows among 225 female healthcare providers' participants who have knowledge about cervical cancer screening, only 10.7 of them had practiced cervical cancer screening.(26)

Despite this population based studies little is known about knowledge, attitude and practice among female health professionals in Ethiopia. Studies document that nurses play a major role in enlightening the public on the availability and need for cervical cancer screening services. Their attitude is often crucial in gaining women's confidence as they are the person who helps to conduct tests. It is therefore relevant to appraise the perception and utilization of cervical cancer screening services by nurses. This study is based on the fact that KAP of female health professional towards cervical cancer screening will affect the community women cervical cancer screening as well.(27)

Literature review

Several studies have shown the importance of health care professionals as predictors of the use of cervical cancer screening. Women's knowledge is also implicated in screening uptake. Women with low levels of knowledge about cervical cancer and its prevention are unlikely to access screening services.(28)

In addition, the World Health Organization (WHO) currently recommends the involvement of doctors, nurses, midwives and all available health agents in cervical cancer prevention. However, the first step of this strategy is to ensure that health agents have appropriate knowledge and attitude about cervical cancer so that they could play a sustainable role in the prevention of this disease.(29)

Previous studies done among female health workers have shown good knowledge of cervical cancer; however, cervical screening attendance rates are still far from satisfactory in most countries. For example, only 18%of female health workers (who were aware of the Pap smear) had actually accessed it.(27)

Studies conducted among health service providers on KAP towards cervical cancer screening are minimal especially in resource poor countries like Ethiopia. These few studies suggest that very few women in sub-Saharan Africa are ever screened for cervical cancer. Interestingly this is also true for female health workers who are supposed to have better knowledge and access to the screening service.(30)

On meta-analysis of factors affecting the practice of cervical screening clinical guideline among health workers in sub-Saharan Africa identified six different themes related to the factors affecting compliance: Insufficient Knowledge/Lack of awareness (FES = 82%), Negligence/Misbeliefs (FES = 82%), Psychological Reasons (FES = 73%), Time/Cost Constraint (FES = 36%), Insufficient infrastructure/training (FES = 45%) and also no reason given (FES = 36%). IES for articles ranged between 33 and 83%.(31)

In the study conducted in Uganda on female health professionals most agreed that it was a public health problem, they knew about the Pap smear test, and that cervical cancer is curable if detected early. Despite that, 81% eligible female respondents had never been screened, mostly because they did not feel vulnerable to the disease (10).

The cervical cancer screening service (CCSS) related knowledge, perception and utilization among female nurses at the University College Hospital, (UCH) Ibadan, Nigeria showed that eighty-eight percent correctly perceived cervical cancer to be preventable and 82.0% believed that screening should be carried out as soon as sexual intercourse starts irrespective of age. Only 32.6% had ever used CCSS facility and main reasons for non-use included lack of time, fear of result and not being sexually active. Other reasons include fears of test being positive and non-consent from husband.(32)

In the study done in West Africa more than 65% of the respondents were aware of the disease, cervical cancer, and approximately 64% were aware of the Pap smear test. Seven three (39.7%) of the respondents had their sexual debut (coitarche) before the age of 20 years, while 109 (59.9%) have had multiple sexual partners. The modal number of sexual partners was 3, range 0-8. Pap smear awareness level significantly varied among the categories of the female health workers ($P < 0.001$). A minority of 14.1% have had a Pap test. There was a significant variation in utilization of Pap test across the various categories of the health workers (Pearson Chi-square 14.67, $P < 0.05$), and a significant correlation between Pap smear awareness and utilization ($P < 0.001$). The majority, 89%, believed that they were not at risk of developing cervical cancer. The self-reported utilization of Pap test among health workers was low. While there was a positive correlation between Pap test awareness and utilization, screening uptake was very poor due to a combination of inappropriate beliefs, misapprehension, and deficient knowledge. There is an urgent need for an aggressive awareness campaign and the provision of a screening program nationally.(33)

The study conducted in Ethiopia showed a little over half (60.8%) of nurses had knowledge of cervical cancer but only 21.9% reported practicing prevention of cervical cancer. Factors like, marital status and training about cervical cancer screening had a

strong and positive association on knowledge; education, family history, unit of work and ever cared patient with cervical cancer were also significantly associated with knowledge of cervical cancer. The study also showed that preventive practice of cervical cancer was significantly associated with younger age, work experience, being diagnosed with cervical cancer, and ever cared patient with cervical cancer and ever visited a health institution.(27)

Objective

4.1 General Objective

To Assess Knowledge, Practices and associated factors on Cervical Cancer Screening among women Health professionals at Gondar University Teaching and Referral Hospital, 2016.

4.2 Specific objective

- To determine Knowledge on Cervical Cancer Screening among women Health professionals at Gondar University Teaching and Referral Hospital, 2016.
- To determine the practice of cervical cancer screening among women who work in Gondar university hospitals, North Gondar Ethiopia 2016.
- To identify factors affecting knowledge of cervical cancer screening among women who work in Gondar university hospitals, North Gondar Ethiopia 2016.
- To identify factors affecting practice of cervical cancer screening among women who work in Gondar university hospitals, North Gondar Ethiopia 2016.

Methodology

5.1 Study design

Institution-based cross-sectional study design was conducted among female health workers comprising doctors, nurses, pharmacists and medical laboratory scientists. Deliberate over-sampling was used to avoid non-response and incomplete responses. Using an appropriate sample size formula for estimating minimum sample size for a descriptive study in a population less than 10,000, and 50% prevalence of knowledge of cervical screening, a sample size of 285 was determined. The estimated sample size was adjusted to accommodate for non-response and wrong/incomplete responses to 315.

5.2 Sampling Technique

A multistage sampling method was used to select the study subjects. First, the four professional areas with female health care providers were identified namely doctors, nurses, pharmacists and medical laboratory technologists. At stage 2, the populations of each group of FHW were obtained and samples proportionately allocated based on the population of each group of FHW.

5.3 Study area and setting

The study was conducted in GUTRH; Amhara regional on February, 2016. GUTRH is serving the north-east part of Ethiopia since 60 years back and has total health care providers 773; among this 350 were female health care providers, and 423 were male in different profession and department. The number of health providers in each department is listed in annex V.

The hospital is organized in departments and has four major (surgery, internal medicine, pediatrics and gyn/obs) and six minor (radiology, dermatology, oncology, neurology, tropical medicine and ophthalmology) departments. The gynecology/obstetrics department provides CSRH services including: short acting, long acting and permanent FP methods, VCT service, ANC, STI screening and treatment, safe abortion, delivery, postnatal care, PMTCT, immunization, different laboratory services and likes.(source GUTRH human resource office)

5.4 Source population

All women health professionals who works at Gondar University Teaching and Referral Hospital.

5.5 Study population

All women health professionals who were working in Gondar university Hospital.

5.6. Inclusion criteria

All women Health professionals who work at Gondar University Teaching and Referral Hospital

5.7 Exclusion criteria

Female health care providers who were not at work due to serious illness or leave during data collection period

5.8 Collection Tool

Self-administered questionnaire was adapted from earlier studies related to cervical cancer and screening knowledge, practices and related factors among women health care providers of other studies. The questions sought to explore respondent's knowledge, attitude and practices towards cervical cancer screening. The questionnaire was translated into Amharic using professional linguists and pre-tested on 5% of sample size from Gondar health center to ensure that it maintained its original meaning.

5.9 Data Collection Process

After receiving clearance from Department Review and Ethical Clearance Committee (REC), the study was conducted using a paper questionnaire. The researcher trained and oriented three data collectors about the purpose of the study, survey questionnaire and how to handle respondents during data collection. The principal investigator tools were pre-tested at Gondar health center. Gondar health center is chosen randomly from existing health centers in Gondar town because of its proximity to study participants.

Data collection was conducted from February 10 to April 30th, 2016 using structured questionnaires. The researcher designed data entry screens using Epi Info software application that was used to translate the paper questionnaire into electronic data for analysis. The researcher checked the questionnaire simultaneously for completeness and reviewed accuracy of each questionnaire at least once and corrected any resulting data errors before analysis.

5.10 Operational definition

Operational definitions that help to guide this research which are taken from other similar studies, includes:-

Knowledge:

We considered knowledgeable about cervical cancer screening if a respondent mentioned above mean of sum total knowledge questions on the questioner.

Practice

Practice was evaluated as having ever been screened themselves.

5.11 Variables

- **Independent: -**
- ✓ Socio-demographic characteristics: (age, marital status, age at marriage, profession, in-service year and training)
- **Dependent: -**
- ✓ Knowledge
- ✓ Practice

5.12 Data entry and analysis procedures

The collected quantitative data was entered to Epi-Info 7, and cleaned and analyzed using SPSS version 20 software program.

5.13 Data quality management

To assure the quality of quantitative data, standardized data collection instrument was developed and pretested at Gondar health center to ensure for simplicity and appropriateness. The entered data was checked for completeness at the beginning and middle stage of the work. Data cleaning was conducted at the end of the data entry.

5.14 Ethical Considerations

Ethical clearance was obtained from Ethical Review Bored /ERB/ of midwifery department, University of Gondar /UOG/. Support letter was obtained from midwifery department IRB. Informed consent was obtained from each study subject.

RESULTS

6.1 Socio- demographic Characteristics of Health Service Providers

A total of 322 female Health care Providers were study participants which makes a response rate of 92%. The mean age of participants is 28.1 years ± 3.9 SD, ranging from 20 to 45 years. There were Laboratory technicians (26), Midwifes (23) and Nurses (223) and pharmacy (47). Among the study participants more than half (61.5%) and around one third (38.2%) were single and married respectively; their mean age at marriage was 25.0 years ± 2.7 SD ranging from 14 to 30 years. About three-fourth (74.2%) participants have been serving as a health service provider for <=4 years with a mean of 3.5 years ± 2.9 SD. Among all participants less than one-third (29.2%) of providers attended training on cervical cancer screening. (Table 1)

Table 1: Socio-demographic characteristics of GUTRH women health service providers, November 2016.

Socio-demographic characteristics		Frequency	Percent
Age	20-29	224	69.6
	30-29	92	28.9
	>=40	6	1.6
	Total	322	100.0
Age at marriage	14-19	4	3.2
	20-24	34	27.4
	>25	86	69.4
	Total	124	100.0
Marital status	Single	198	61.5
	Married	123	38.2
	Divorced	1	.3
	Total	322	100.0
Profession	gyn/oby resident	1	.3
	GP	2	.6
	Nurse	223	69.3
	Midwifes	23	6.1
	Lab tech	26	8.1
	pharmacy	47	14.6
	Total	322	100.0
Level of education	Diploma	26	8.1
	BSc	254	78.8
	MSc	38	11.8
	MD	4	1.2
	Total	322	100.0
Training on cervical cancer screening	no	228	70.8
	yes	94	29.2
	Total	322	100.0
Service year	<=4	239	74.2
	5-9	72	22.4
	10-14	6	1.9
	>=15	5	1.6
	Total	322	100

6.2 Knowledge towards of Cervical Cancer

About half (52.5%) and three-fourth (72.4%) of respondents considered cervical cancer is at high extent and a public health problem in Ethiopia respectively. (Table2)

Table 2:- Knowledge about cervical cancer risks and symptoms among GUTRH women health service providers

Questions about knowledge of cervical cancer risk		Frequency	Percent
Know cervical cancer is a public health problem in Ethiopia	yes	234	72.7
	no	40	12.4
	I don't know	48	14.9
	Total	322	100.0
Know the level of cervical cancer is high in Ethiopia	yes	169	52.5
	no	52	16.1
	difficult to describe due to few study	101	31.4
	Total	322	100.0

The most frequently mentioned risk factor for cervical cancer is multiple sexual partners (55.6%), Sexually Transmitted Infection (STI) (60.9%), smoking (64.0%) and don't know/mention any risk factor (39.6%). (Figure 1)

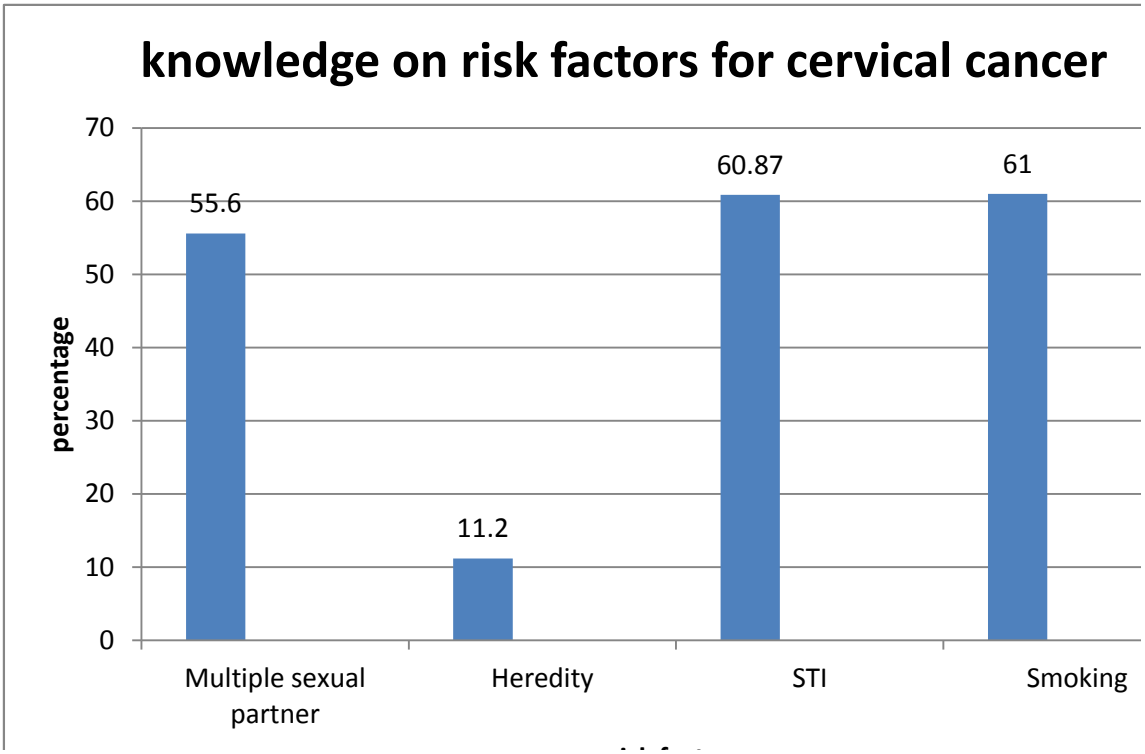

Figure 1: Knowledge of female health worker respondents on risk factors for cervical cancer in Gondar Teaching and Referral hospital, Gondar Ethiopia, 2016.

The most frequently mentioned symptoms of cervical cancer by respondents were irregular vaginal bleeding (60.6%), foul smelling vaginal discharge (41.6%), post coital bleeding (30.4%), pain during intercourse (23%), weight loss (65.5%) and don't mention any symptom (12.7%). (Figure 2)

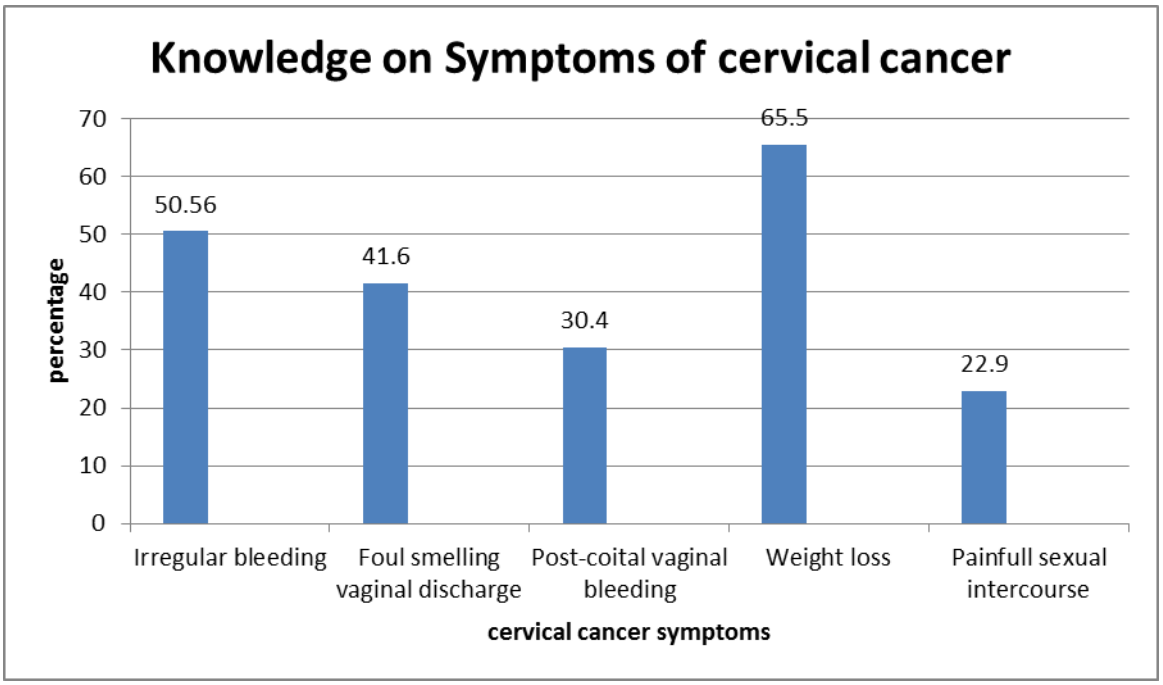

Figure 2: Knowledge of respondents on symptoms of cervical cancer in Gondar Teaching and Referral hospital, Gondar Ethiopia.2016

6.3 Knowledge towards Cervical Cancer screening procedure

More than three-fourth (77.6%) of respondents believed that screening can detect cervical cancer before symptoms appear. (Table 3)

Table 3:- Knowledge about cervical cancer screening procedure among GUTRH women health providers

		Frequency	Percent
Know the cervical cancer screening detect before symptom	yes	252	78.3
	no	41	12.7
	i don't know	29	9.0
	Total	322	100.0

Half (57.8%, 48.1% and 45%) of participants mentioned Pap smear, VILI and colposcopy as cervical cancer screening procedures, respectively. (Figure 3)

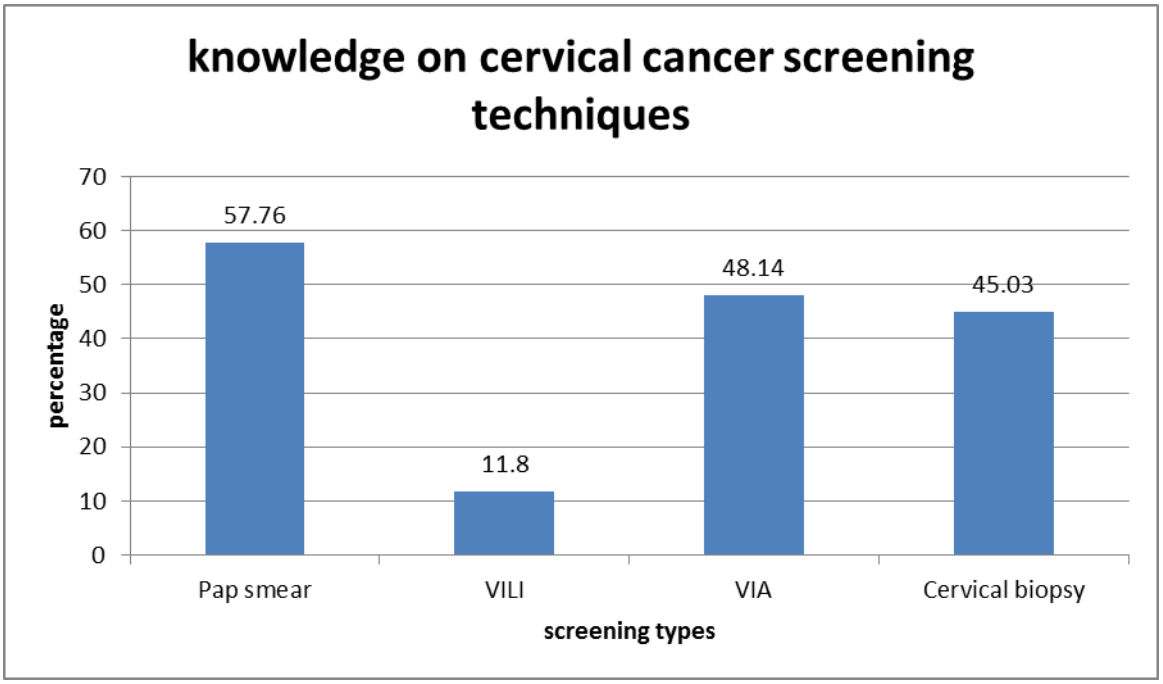

Figure 3: Knowledge of female health worker respondents on cervical cancer screening types of procedures in Gondar Teaching and Referral hospital, Gondar Ethiopia, 2016.

All of study participants attempted to identify recommended age of women for cervical cancer screening. About one-third mentioned (31.4%) < 30 years and about half (42.9%) of the respondents mentioned 40 to 49years as a recommended age. (Figure 4) The most frequently mentioned time interval for early detection and intervention was every one year (57.8%) followed by every six month (23%) and every three year (18.9%).

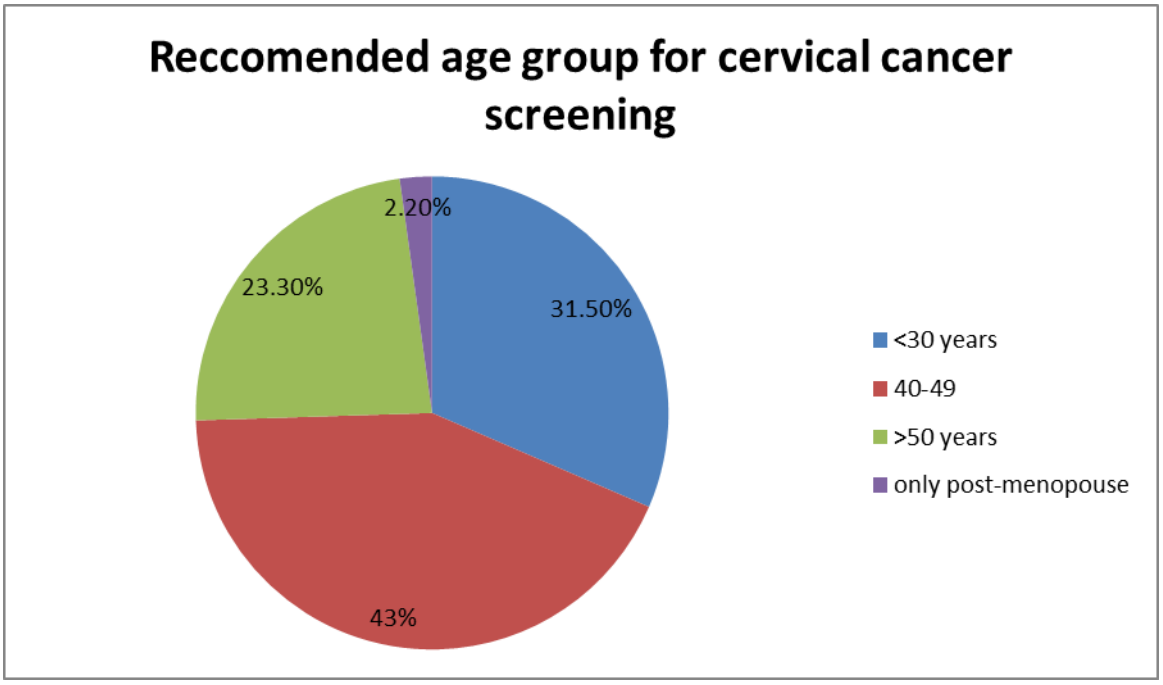

Figure 4: Knowledge of female health worker respondents on recommended age group of cervical cancer screening in Gondar Teaching and Referral hospital, Gondar Ethiopia, 2016.

6.4 Practice of Health Service Providers towards Cervical Cancer Screening

Among all respondents only one-fifth (18.3%) have ever screened for cervical cancer. (Table 4)

Table 4:- Practice of cervical cancer screens among GUTRH women health service providers, November 2016.

		Frequency	Percent
Have you ever had cervical cancer screening	no	263	81.7
	yes	59	18.3
	Total	322	100.0

6.5 Association for predictors of knowledge and practice towards cervical cancer screening

Socio-demographic characteristics of respondents in relation to knowledge towards cervical cancer screening were analyzed using bivariate logistic regression. A significant difference on the knowledge of respondents among different service year and profession of the respondents was detected with bivariate logistic regression analysis (Table5). The analysis showed that service year >=15 each with [OR: 0.101 **(95%CI**0.011-.924)) are significantly associated and as service year increase knowledge decreases. Regarding profession being midwife [OR: 0**.170 (95%CI(0.056-.518)]**, and lab tech [OR: 0**.309 (95%CI0.106-.896)**] are significantly associated knowledge with negative impact on knowledge about cervical cancer screening. No association was seen after controlling for other variables. (Table 5)

Bivariate analysis of practice of cervical screening showed that age group (30-39 years) [OR: 2.751(1.519-4.981)] and age >=40[OR: 10.086(1.616-62.953), being married [OR: 2.884(1.616-5.146)], service year 5-9 [OR: 2.169(1.160-4.055)] and training on cervical cancer [OR: 2.067(1.152-3.711)] are significantly and positively associated. With multivariate analysis no association was found. (Table 6)

Table 5:- Bivariate and Multiple logistic regression of determinant factors of knowledge towards cervical cancer screening among women health workers of GUTRH,Gonder 2016.

Variable		Knowledge		COR(95%CI)	AOR(95%CI)
		not knowledgeable	Knowledgeable		
Have you ever had training on cervical cancer screening	No	77	151	-	-
	Yes	29	65	1.143(.682-1.916)	1.580 (.641-3.893)
Profession	Pharmacy	9	34	-	-
	Gyne/ob	0	1	-	-
	GP	2	0	-	-
	HO	0	4		
	Nurse	69	154	.591(.269-1.299)	.464(0.045-4.762)
	Midwife	14	9	**.170(.056-.518)**	.085(0.006-1.153)
	Lab tech	12	14	**.309(.106-.896)**	.227(0.019-2.725)
	Pharmacy	9	34	-	-
Level of education	Diploma	4	22	-	-
	BSc	83	170	.372(.124-1.116)	.313(0.055-1.763)
	MSc	16	22	.250(.072-.868)	.241(0.035-1.675)
	MD	1	3	.182(.009-3.542)	-
Age	20-29	72	152	-	.-
	30-39	31	61	.947(.566-1.584)	1.758(.719-4.300)
	>=40	3	2	.316(.052-1.932)	2.653 (0.122-57.756)
Service year	<=4	69	170	-	-
	5-9	29	43	.602(.348-1.041)	.847(.324-2.218)
	10-14	4	2	.203(.036-1.134)	.139(.009-2.048)
	>=15	4	1	**.101(.011-.924)**	.082(.003-2.403)

Table 6:- Bivariate and Multiple logistic regression of determinant factors of practice towards cervical cancer screening among women health workers of GUTRH,Gonder 2016.

Variables		Practice		COR (95% C.I.for COR)	AOR(95% C.I.for AOR)
		Not practiced	Practice		
Age	20-29	195	29	−	−
	30-39	66	27	**2.751(1.519-4.981)**	1.084(.404-2.908)
	>=40	2	3	**10.086(1.616-62.953)**	6.533(.295-144.612)
Marital status	Single	174	24	−	−
	Married	88	35	**2.884(1.616-5.146)**	358667709.426
	Divorced	1	0	-	-
Age at marriage	14-19	2	2	−	−
	20-24	25	9	.360(.044-2.948)	.287(.026-3.183)
	>25	62	24	.387(.052-2.906)	.597(.058-6.115)
Level of education	Diploma	18	8	−	−
	BsC	211	42	.448(.183-1.097)	.492(.129-1.879)
	MsC	30	8	.600(.192-1.878)	.310(.053-1.800)
	MD	4	0	-	-
Service year	<=4	203	36	−	−
	5-9	52	20	**2.169(1.160-4.055)**	2.535(.941-6.826)
	10-14	5	1	1.128(.128-9.938)	.682(.040-11.612)
	>=15	3	2	3.759(.607-23.294)	1.319(.052-33.751)
Training on cervical cancer screening	No training	194	34	−	−
	Have training	69	25	**2.067(1.152-3.711)**	2.267(.900-5.712)
Knowledge	Not knowledgeable	87	19	−	−
	Knowledgeable	176	40	1.041(.569-1.903)	1.138(.422-3.073)

DISCUSSION

This institution based cross sectional study was conducted to assess the knowledge, practice and associated factors of cervical cancer screening among women health care providers working at in university of Gondar teaching and referral hospital.

The overall knowledge on cervical cancer risk factors and prevention methods were assessed and majority 66.9% (95%CI; 61.6-72.2) the respondents in this study found to be knowledgeable. This finding is also comparable with studies conducted among the medical workers of Mulago Hospital, Uganda (64%)(34). This finding is higher than studies conducted among women health care providers at Public Health Institutions in Addis Ababa, Ethiopia (50%)(35), and among nurses at a regional hospital in Tanzania (<50%)(36) This can be due to the differences in sampling and study participants at Gondar University have higher chance of getting more information through their education, trainings and in different ways in the work place. But this finding is also lower than studies conducted among female among female nurses in University College Hospital, Ibadan, Nigeria (84.9%)(32) and amongst Nurses in Lagos University Teaching Hospital, Lagos, Nigeria (85.5%)(37). This can be due the earlier emergence of initiatives related to cervical cancer and screening.

According to our study, on bivariate analysis there is a significant (p<0.05%) and negative association between year of service and knowledge of the respondents towards cervical cancer screening, as service year increases (>=15) knowledge about cervical cancer drops down. Age of respondents and marital status were factors associated significantly (p<0.05%) with awareness of cervical cancer screening mentioned in Lagos University Teaching Hospital.(37) Young age is significantly associated with good knowledge towards cervical cancer in Tanzanian study.(36) This result is may be due to difference in curriculum among different graduates and also it is an indicative of lack of continuous training on the area.

The other important finding found on our study was the significant and negative association **(**$p \leq 0.05$) between midwifes and lab techs with knowledge towards cervical cancer screening, which is similar to a finding in University College Hospital, Ibadan,

Nigeria (32).

Only a small proportion of the health care workers had attended continuing medical education sessions/training at the hospital or seminars out of the hospital. This may be reason for low knowledge among these staff members observed in our study. The importance of even brief training on knowledge of cervical cancer and screening is also reflected in studies.(38)

In this study Cervical cancer screening practice is 18.4% (14.0-22.7%; 95%CI). This finding is comparable with studies conducted among women health care providers working at among the medical workers of Mulago Hospital, Uganda (19%)(34) and nurses at a regional hospital in Tanzania (15.6%)(36) as well as earlier study in Ethiopia (17%)(27). This resemblance can be due to the similarities in development, health facility setup and study designs. The cervical cancer screening practice is lower when compared to studies conducted among women health care providers working at among female nurses in University College Hospital, Ibadan, Nigeria (32.6%).(32) this can be due to the recent launch of cervical cancer screening service in the country as well as in the study area this may limit the participants access to the service.

Bivariate analysis of practice of cervical screening against various factors showed that age, being married, service year and training on cervical cancer are significantly and positively associated. A study in Lagos University teaching Hospital has similar finding with our study in utilization of cervical cancer screening depends on marital status and age(37). There was significant association of utilization of cervical cancer screening and continued medical education in study made in Tanzania (36).

There appears to be no association level of knowledge and utilization of cervical cancer screening service (CCSS) in our study. This finding is similar to most of studies in Africa (34, 39, 40). The reasons for this may be ignorance, misconceptions and religious beliefs. Further study is needed to identify factor affecting utilization of CCSS among health professionals.

These results call for creation of health promotion and disease prevention policies as well as awareness campaigns and screening programs at all levels of the health sector. The continuing education program such as institution based health workshops and seminars provide an opportunity for doing this. Integration of screening services into already existing programs, such as family planning and reproductive health services, would be an effective strategy in an already financially and human resource challenged health sector.

7.1 CONCLUSION

- More than half of the respondents have overall good knowledge on of cervical cancer.
- Less than half the participants know types of cervical screening methods showing low knowledge on cervical cancer screening methods.
- There was poor practice among respondents.
- Being midwife, lab tech and taking training on cervical cancer are significantly and positively associated with practice of cervical cancer screening.
- There appeared to be no association between knowledge on cervical cancer screening and practice of screening.

7.2 Strength and Limitation of study

Strength

- The study was conducted at teaching institution which takes account of all female health care providers.

Limitation

- Other factors affecting (personal character, institutional factor) knowledge and practice towards cervical cancer screening were not included.

7.3 Recommendations:

Based on the findings and discussion about this study, more should be done on awareness creation about cervical cancer screening and establishing national screening programs.

At national level

- ✓ Developing policies on health educations and promotions targeting on screening of cervical cancer among health providers
- ✓ Further study should be conducted at the community and national level to target all females and other findings.

Regional, zonal and institutional level

- ✓ Developing projects on training and health education for health care providers

To other researcher

- ✓ Further studies to exploit factors associated with low practice of cervical cancer screening should be undertaken.

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Annex I- Survey questionnaire (English)

Hello, my name is _____ and I am a student at Gondar University School of medicine and Health science, department of midwifery. Currently i am conducting a research to assess Knowledge, Practice and associated factors on Cervical Cancer screening among women health service providers who works Gondar university Hospital. Thus, I am requesting your cooperation to fill out the survey question which will take about 20 minutes to complete. Participation in this survey will be voluntary, and if you don't want to participate or if there is any question you don't want to answer you can skip to the next, or if you choose not to participate you could withdraw at any time. I assure all information that you provide will remain strictly private, and confidentiality of responses would be maintained during and after data collection. Only numbers will be assigned to each copy and no name will be required on the questionnaire. The numbers would facilitate data entry and analysis, so no one can link your identity with the registration numbers. Your individual answers will not be discussed with the staff members. Findings from this research are believed to serve practitioners to design evidence based programs on cervical cancer prevention and management. Moreover studies in similar topics which may be conducted in a different scale and depth can make use this study as a spring board. No risk is found by participating in this study. I hope you will participate in the survey as your feedbacks are important. Thank you for your willingness to be my study participant and taking time to fill study questionnaire.

If you need further clarification about the survey, please contact me any time via +251918262436 or email: tamrat1980@gmail.com

Section 1: Socio-demographic background characteristics of woman health service provider

S.No	Questions	Response	Remark
1	How old are you?	----------	
2	What is your marital status?	1.Single 2.Married / in union 3.Divorced 4.Widowed	If you are not married go to question number 4
3	At what age you were married?	----------	
4	What is your profession?	1.Gynecologist / Obstetrician 2.General practitioner 3.Health officer 4.Nurse 5.Midwife 6.Laboratory technician 7.Another department (mention)……..	
5	Level of education	1.Diploma 2.BSC 3.MSC 4.PHD 4. Another …….	
6	What is your total in service year duration both at GUH and other Heal service places.	----------	
7	Have you ever attended training related to cervical cancer?	1.Yes ---------- 2.No……..	

Section 2: Knowledge of woman health service providers towards cervical cancer

S.No	Question	Response	Remark
1	Do you know Cervical cancer is a public health problem in Ethiopia Context?	1.Yes 2. No 3.I don't know	
2	Do you know level of cervical cancer is high in Ethiopia?	1.Yes 2. No 3.Difficult to describe due to few studies 4.I don't know	
3	What are predisposing and risk factors to acquire Cervical cancer?	1. multiple sexual partners 2. hereditary 3. sexually transmitted infections/STI	Can circle more than one
4	What are symptoms of Cervical cancer?	1.irregular bleeding 2. foul smelling vaginal discharge 3. post coital bleeding 4.wight loss 5. painful intercourse 6. Other_____	Can circle more than one

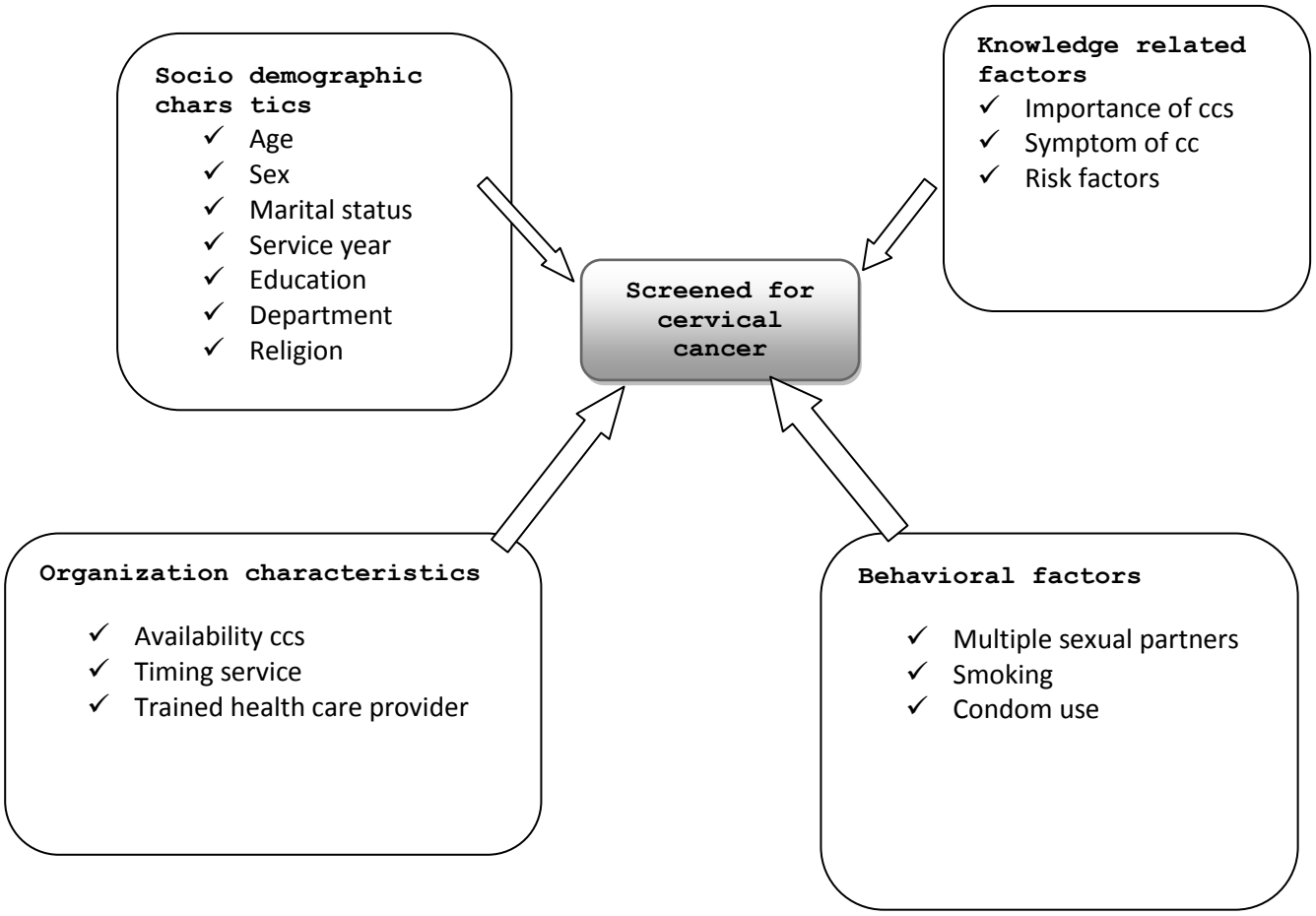
Section 3: Knowledge of women health service providers towards cervical cancer screening procedures, recommended age and screening intervals

S.No	Question	Response	Remark
1	Do you know cervical cancer screening can detect cervical cancer even before symptoms appear?	1.Yes 2.No 3.I don't know	Can circle more than one
2	What are types of cervical cancer screening techniques.	1.pap smear 2 VILI 3.VIA 4.Cx. biopsy	
3	In which age groups of women do you recommend cervical cancer screening?	1. <30 2. 40-49 3. >50 4. Only post menopause women	
4	How frequently would you recommend Cervical Cancer screening?	1.Twice a year 2.Once a year 3.once every 3 year 4. once a year	
5	Cervical cancer mostly affects women in which age group?	5. <30 6. 40-49 7. >50 8. All age group are affected.	

Section 5. Practice of woman health service providers towards cervical cancer screening

S.No	Question	Response	Remark
1	Have you ever had a Cervical Cancer screening?	1. Yes 2.No----------	If your response is yes pls go to Q 03
2.	If no for Q 01 why?	----------	
3	Are you willing to undergo a cervical cancer screening test?	1. Yes 2. No	
4	If no for Q 03 why?		
5	Have you ever done pelvic exam for Cervical Cancer screening?	1.Yes 2. No----------	
6	If no for Q 05 why?		
7	Have you ever done speculum exam for Cervical cancer screening? Cancer screening?	1.Yes 2. No----------	
8	Have you ever done Cervical screening? Cancer screening?	1.Yes 2. No---------- -	

Annex II Conceptual framework



Conceptual framework showing factors contributing for cervical cancer screening (adopted from different literatures)

Annex V: Female Health care providers' profile of Gondar Teaching and Referral Hospital

S.No.	Profession	Level of education				Total
		Diploma	BSc	MSc	MD	
1	General practitioner				6	6
2	Public health		4			4
3	Health officer		3			3
4	Anesthetist		1			1
5	Physiotherapist		2			2
6	Pharmacy	9	22	1		32
7	Laboratory	4	23	2		29
8	Midwife		20	1		21
9	Nurse	23	213	6		242
10	Psychiatry		4			4
11	Optometry		3	1		4
12	Other			2		2
	Total	36	295	13	6	350